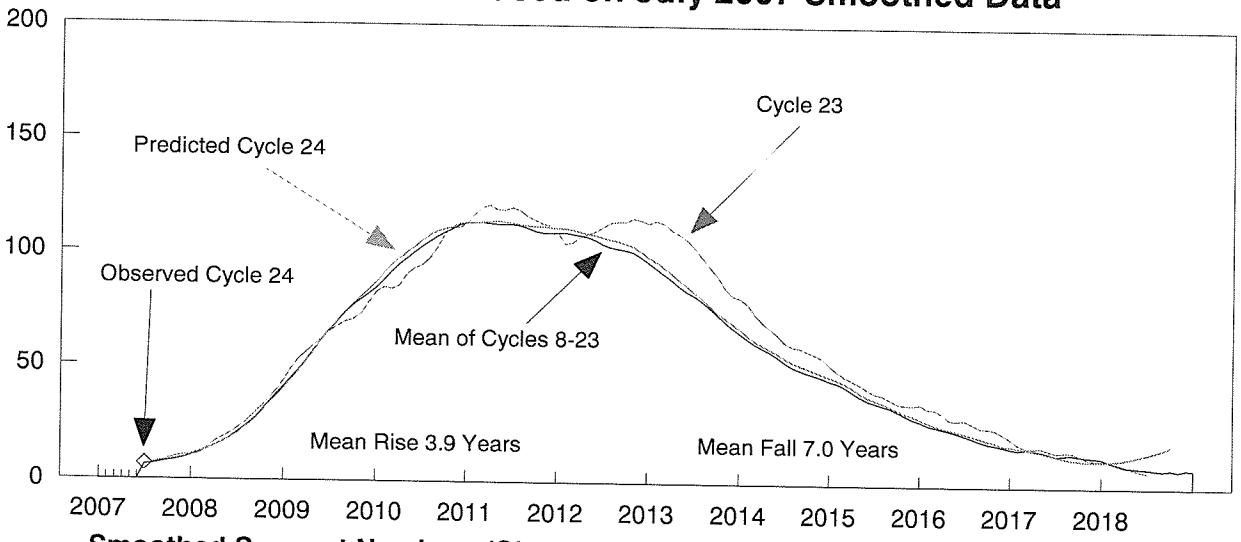
Cycle 24 Smoothed Sunspot Numbers: Observed and Predicted
PRELIMINARY Based on July 2007 Smoothed Data



Smoothed Sunspot Numbers (Observed and Predicted) for Parts of Solar Cycles 23 and 24

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1996	10	10	10	9	8*	9	8	8	8	9**	10	10	8
1997	11	11	14	17	18	20	23	25	28	32	35	39	23
1998	44	49	53	57	59	63	65	68	69	71	73	78	62
1999	83	85	84	85	90	93	94	98	102	108	111	111	95
2000	113	117	120	120.8+	119	119	120	119	116	115	113	112	107
2001	109	104	105	108	109	110	112	114	114	114	115	115	111
2002	114	115	113	111	109	106	103	99	95	91	85	82	102
2003	81	79	74	70	68	65	62	60	60	58	57	57	66
2004	53	49	47	46	46	42	40	39	38	36	35	35	42
2005	35	34	34	32	29	29	29	27	26	26	25	23	29
2006	21	19	17	17	17	16	15	16	16	14	13	13	16
2007	12	12	11	10	9	8	7##	7	8	8	9	10	9
								(0)	(1)	(2)	(3)	(4)	(1)
2008	11	12	13	15	16	18	21	23	26	29	33	37	21
	(5)	(6)	(7)	(8)	(10)	(12)	(14)	(16)	(18)	(21)	(23)	(26)	(14)
2009	40	44	48	52	57	62	67	70	74	77	81	84	63
	(29)	(32)	(35)	(39)	(43)	(47)	(50)	(53)	(55)	(58)	(60)	(60)	(47)

Solar Cycle 22 | Solar Cycle 23 | Min, Max, and Predictions | ediction.

*** May 1996 marks Cycle 22's mathematical minimum.** **** October 1996 marks the consensus minimum.**

+ April 2000 marks Cycle 23 maximum. ## - Preliminary Cycle 24 Minumum

NOTE: Predictions beyond 2007 will not be determined until solar minimum is reached.

Observed and Predicted Numbers. For the end of Cycle 23 and the rise and decline of Cycle 24, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through Sep 2007 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data.*) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the July 2008 prediction. There exists a 90% chance that in July 2008, the actual smoothed number will fall somewhere between 7 and 35.

Points to Ponder. The McNish-Lincoln prediction method generates useful estimates of smoothed, monthly mean sunspot numbers for no more than 12 months ahead. Beyond 12 months, the predictions regress toward the mean of all 16 cycles of observations used in the computation. Moreover, the method remains very sensitive to the date defining the onset of the current cycle, that is, to the date of the most recent sunspot minimum. The new cycle predictions tabulated above are based on a PRELIMINARY minimum of July, 2007. This will be updated monthly until the actual minimum is reached.